

REMARKS

Favorable reconsideration of this application in light of the preceding amendments and the following remarks is respectfully requested.

No claims having been cancelled or added, the Applicants respectfully submit that claims 1-25 remain properly under consideration in this application.

The Applicants note with appreciation the Examiner's acknowledgement that certified copies of all priority documents have been received by the USPTO. Action Summary at 12.

The Applicants respectfully note that the present Action does not indicate that the drawings have been accepted by the Examiner. The Applicants respectfully request that the Examiner's next communication include an indication as to the acceptability of the filed drawings or as to any perceived deficiencies so that the Applicants may have a full and fair opportunity to submit appropriate amendments and/or corrections to the drawings.

Elections/Restrictions

The Applicants note with appreciation the Examiner's indication that the previously indicated Restriction Requirement has been withdrawn and that all of the originally filed claims will be examined on the merits.

Specification

The Applicants hereby confirm their willingness to cooperate with the Examiner in the identification and correction of minor errors within the specification. The Applicants respectfully submit, however, that they are not presently aware of any such errors that would require correction.

Claim Objections

Claims 7-19 and 23-25 stand objected to for various informalities as detailed in the Action. Action at 2. The Applicants respectfully submit that the amendments to the claims reflected above are sufficient to address and overcome each of the identified informalities. The Applicants respectfully request, therefore, that these objections be withdrawn.

Rejections under 35 U.S.C. § 102

Claims 23 and 24 stand rejected under 35 U.S.C. § 102(b) as anticipated by Lee et al.'s U.S. Patent No. 6,277,722 ("Lee"). The Applicants respectfully traverse this rejection for the reasons detailed below.

The Applicants respectfully note that the cited portion of Lee provides only that:

Therefore, because the reoxidation is carried out only in the Si, the damage caused in the etching process is recovered and the reliability of the gate oxide is improved as well as the oxidation of the tungsten film is *not* prevented.

Lee, col. 3, lines 34-37 (emphasis added). The Applicants respectfully contend that this passage does not teach or suggest to one of ordinary skill that the oxidation rates are different for the first (polysilicon) and second (tungsten) conductor patterns. Indeed, the Applicants suggest that because oxidation of the second conductor pattern (tungsten) is explicitly NOT prevented by Lee, it is difficult to understand how the relative oxidation of the first conductor pattern (polysilicon) can be considered "enhanced." The Applicants respectfully maintain, therefore, that Lee does not teach or suggest a process in which "a first oxidation rate of the first conductor pattern is enhanced relative to a second oxidation rate of the second conductor pattern" as recited in claim 23. Because claim 24 depends from claim 23, the same argument applies with respect to Lee.

The Applicants, therefore, respectfully request that this rejection be withdrawn.

Rejections under 35 U.S.C. § 103

Claims 1-6, 19, 20 and 25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Lee in view of Kobayashi et al.'s U.S. Patent No. 4,505,028 ("Kobayashi"). The Applicants respectfully traverse this rejection for the reasons detailed below.

The Applicants respectfully incorporate the discussion above with respect to the teachings of Lee. Again, the Applicants respectfully contend that the cited portion of Lee do not teach or suggest that any oxidation of the tungsten or polysilicon patterns occurs during the reoxidation process. The Applicants respectfully note that a comparison of FIGS. 3 and 4 suggest that, in accordance with the plain language of the cited portions of the Lee specification, the reoxidation process is limited to the Si of the substrate 10 to regrow, at least partially, and remove etch damage from, oxide layer 11.

Indeed, the Applicants respectfully note that if the heat treatment is, as Lee teaches at col. 3, lines 28-33, sufficient to improve the quality of the nitride sidewalls and thereby prevent the flow of oxidizing gas to the tungsten layer, these same sidewalls will also be improve to a degree sufficient to prevent the flow of the same oxidizing gas to the polysilicon layer during the reoxidation process. The Applicants respectfully contend that no teaching in Lee has been identified that would controvert this conclusion or that one of ordinary skill in the art, reviewing this disclosure, could reach any other logical conclusion.

With respect to the proposed combination of Lee and Kobayshi, the Applicants respectfully note that, as discussed above, Lee is focused on preventing migration of the oxidizing gases through the nitride sidewalls, thereby suppressing oxidation of both the metal and polysilicon layers within the metal gate pattern. The Applicants further note that Kobayshi is focused on the selective oxidation of Si and that the disclosed gate structures do NOT include polysilicon or protective sidewalls. The Applicants respectfully contend, therefore, that no motivation has been identified that would lead one of ordinary skill to abandon the explicit teachings of Lee with regard to the use of a nitride sidewall to prevent oxidation in favor of an ambient that selectively oxidizes Si.

The Applicants further note that, if one of ordinary skill were motivated to combine Lee and Kobayshi, the result would likely be the elimination of Lee's sidewall which would expose the polysilicon in the gate stack to the oxidizing environment – a result that neither Lee nor Kobayshi would encourage. Conversely, if Lee's protective nitride sidewall remains, there is no need to or apparent advantage in using Kobayshi's selective oxidation ambient.

The Applicants maintain, therefore, that the Action does not present the required “convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references,” *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985), and that this rejection may not be properly maintained absent such reasoning.

The Applicants, therefore, respectfully request that this rejection be withdrawn.

Claim 21 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Lee in view of Kobayashi, and further in view of Hwang et al.’s U.S. Patent No. 6,245,605 (“Hwang”). The Applicants respectfully traverse this rejection for the reasons detailed below.

The Applicants respectfully incorporate the discussion above with respect to the deficiencies of both Lee and Kobayshi and with respect to the lack of motivation to make the proposed combination of method steps suggested by the Examiner. The Applicants respectfully submit that Hwang, like Kobayshi, utilizes a selective oxidation/reduction ambient to avoid the need to form the protective sidewall of Lee during the reoxidation process and, therefore, would not provide one of ordinary skill with the requisite motivation to make the proposed combination for the reasons discussed above in connection with Kobayshi. Further, the Applicants respectfully contend that even were

such a combination to be made, the teachings of Hwang are not sufficient to remedy the noted deficiencies in Lee and Kobayshi, whether considered singly or in combination.

Allowable Subject Matter

The Applicants note with appreciation the Examiner's indication that claims 7-18 and 22 are objected to as depending from a rejected base claim and would, therefore, be allowable if rewritten in independent form incorporating limitations of all included claims. As reflected by the remarks above, however, the Applicants respectfully maintain that the remaining claims are also allowable and that no such rewriting of claims 7-18 and 22 is warranted at this time.

CONCLUSION

In view of the above remarks and amendments, the Applicants respectfully submit that each of the pending objections and rejections have been addressed and overcome, leaving the present application in condition for allowance. A notice to that effect is respectfully requested.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned.

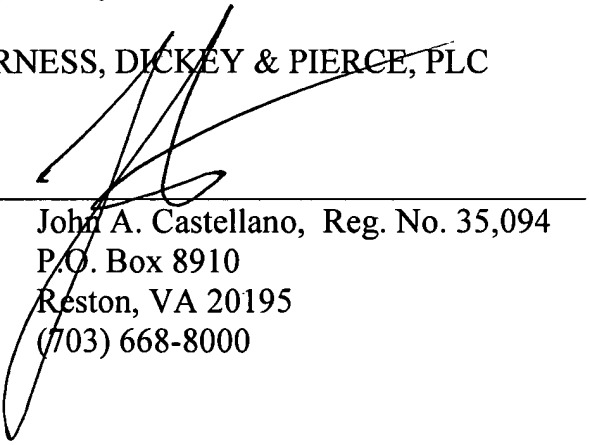
If necessary, the Commissioner is hereby authorized in this, concurrent, and future

replies to charge any underpayment or non-payment of any fees required under 37 C.F.R.
§§ 1.16 or 1.17, or credit any overpayment of such fees, to Deposit Account No. 08-0750,
including, in particular, extension of time fees.

Respectfully submitted,

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By



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